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2	BRS	L1	13	("force feedback" or haptic) same "spring force" with (button or icon)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/05/29 13:24
3	BRS	L3	12354	("force feedback" or haptic) same spring wity force with (button or icon)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/05/29 13:25
4	BRS	L4	15	("force feedback" or haptic) same spring with force with (button or icon)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/05/29 13:26
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6	BRS	L6	231	immersion$.as.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/05/29 13:28
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8	BRS	L7	113	immersion$.as.	USPAT; US-PGPUB	2002/05/29 13:49
9	BRS	L9	15	immersion$.as. and icon.clm.	USPAT; US-PGPUB	2002/05/29 14:43
10	BRS	L11	37	immersion$.as. and spring.clm.	USPAT; US-PGPUB	2002/05/29 14:44
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Adding Force Feedback to Graphics Systems: Issues and.. - Mark, Randolph.. (1996) (Correct) (32 citations)
...**Force Feedback** to Graphics Systems: Issues and Solutions William R. Mark 1 Scott C. Randolph 2 Mark Finch ... /...In particular, lengthy computations for graphics or simulation require a decoupling of the **haptic** servo loop from the main application loop if high-quality forces are to be produced. We present... /...of a plane which the probe can contact. [1] When the probe penetrates the plane, a restorative **spring force** that depends on the depth of the penetration is applied. The result is a surface with...
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Haptic Feedback of Kinematic Conditioning for Telerobotic.. - Thavida Maneewarn And (1998) (Correct) (2 citations)
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...into contact with the surface. These models were designed for and implemented on the PHANToM **force-feedback** device marketed by SensAble Technologies. Early implementations were also tested on the Argonne... /...and Adhesion Model for Simulated Surfaces," citeProceedings of the Sixth Annual Symposium on **Haptic** Interfaces for Virtual Environment and Teleoperator Systems/cite, Dallas, Texas. November... /...magnitude is independent of the direction of the force the force due to adhesion increases as a **spring force** until the maximum force is reached, then drops back to zero over some distance (simulating a...
www.cs.unc.edu/Research/nano/doc/papers/sticking_to_point.pdf

Inertial Force Feedback For A Locomotion Interface - Robert Christensen (1998) (Correct) (1 citation)
... INERTIAL **FORCE FEEDBACK** FOR A LOCOMOTION INTERFACE Robert R. Christensen John M. Hollerbach Yangming Xu Sanford G. Meek... /...The purpose was to make locomotion on the Treadport more like locomotion on the ground. The **feedback force** was applied to the user by a mechanical tether. Psychophysical experiments were performed to... /...The results showed that all eleven subjects preferred inertial **force feedback** when compared to a **spring force** or no force. 1 INTRODUCTION One of the challenges of virtual reality research is to simulate...
www.cs.utah.edu/~jmh/Christensen98.ps

Investigating the Use of Force Feedback for Motion-Impaired.. - Simeon Keates Patrick (2000) (Correct)
...for All" Short Paper CNR-IROE, Florence, Italy 25-26 October 2000 Investigating the use of **force feedback** for motion-impaired users Simeon Keates 1 , Patrick Langdon 1 , John Clarkson 1 and Peter... /...of human-computer interaction (HCI), can improve interaction rates if implemented carefully. **Haptic** feedback is not really exploited in the existing HCI paradigm, so offers a potential method for... /...that outer circle causes the cursor to become subject to the gravity and it is attracted by a **spring force** towards the centre. The average times obtained across all the users are shown in Figure 1. Figure ...
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...calculated, so that the tissues can be `felt' by the prospective surgeon. For this, the use of a **force feedback** model is of special importance. The elasticity of structures can be described by use of... /...as integrators (see, for example, [5] or [8]). pos ition ve loc ity acceleration external forces **spring forces** velocity output position output Figure 2: Neurons describing the mass point dynamic Let t c be...
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... feedback term can be just a damped **spring force**, pulling the particle back onto a unit circle. The **feedback force** needs to be added in after the constraint force calculation, or else the constraint force will... /...with rest length r makes the particles it connects "want" to be distance r apart. However, the **spring force** competes with all other forces acting on the particles-gravity, other springs, forces applied...

www.cs.cmu.edu/~baraff/sigcourse/notesf.pdf

A Framework For Collision Detection And Response - Lennerz, Schömer, Warken (Correct)
...This enables the assembly engineer to intuitively manipulate all objects in spite of missing **force feedback** mechanisms. Figure 1 demonstrates the principle: Figure 1: The insertion of a bolt into a... /... acting during a collision consists in using springs. If two objects are going to interpenetrate, a **spring force** depending on the penetration depth pushes them apart. Physically more correct models for the...
www-hotz.cs.uni-sb.de/~schoemer/publications/ESS99.ps.gz

Display Of Friction In Virtual Environments Based On Human.. - Nahvi Hollerbach (1998) (Correct)
...for virtual environments. Since a user's fingertip is often placed inside a ring or thimble of a **haptic** interface , the finger pad cannot move relative to the finger structure as freely as it would... /...is proportional to the normal force. It pulls the **haptic** interface towards c (stick center). The **spring force** at this moment is: f f k f jj n jj (a \Gamma c) d jj n jj v jj v jj (2) As long as the...
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